This Page Is Inserted by IFW Operations and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

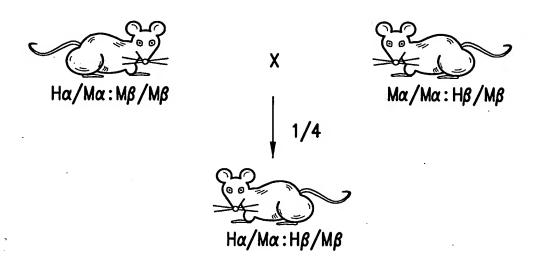
IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents will not correct images, please do not report the images to the Image Problem Mailbox.



Inventor: Townes et al.
Application No. 10/659,675
Docket No. 21085.0053U5
Sheet: 1 of 16
REPLACEMENT DRAWINGS

MATING SCHEME FOR PRODUCTION OF HAA REPLACEMENT MICE



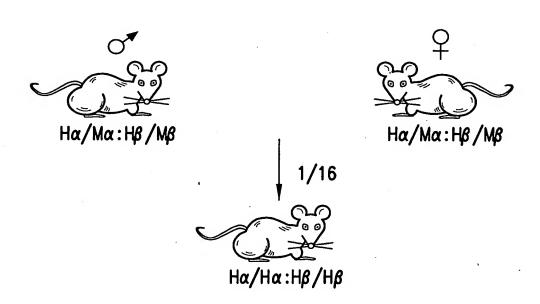


FIG.1

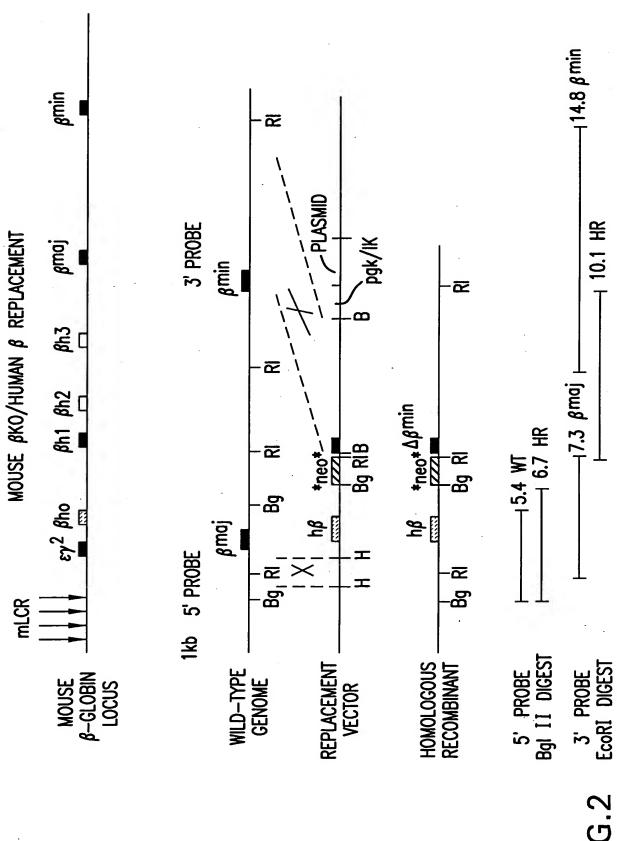


FIG.2

Inventor: Townes et al.
Application No. 10/659,675
Docket No. 21085.0053U5
Sheet: 3 of 16
REPLACEMENT DRAWINGS

HUMAN LCR*eyyôβ*3'HS1 REPLACEMENT HUMAN LCREYYÓBS REPLACEMENT HUMAN LCR $\gammaeta^{
m S}$ REPLACEMENT HUMAN $\gamma \beta^{\rm S}$ REPLACEMENT-2 HUMAN 78 REPLACEMENT-1 HUMAN EYYŐB^S REPLACEMENT - MOUSE β-GLOBIN LOCUS HUMAN & REPLACEMENT HUMAN REPLACEMENT OF THE MOUSE $\beta-$ GLOBIN LOCUS Hprt Tag h3'HS1 8min hBS hBS hBS Ьô Ьŝ Ьŝ BH1 BH2 BH3 hy hBS BH1 BH2 BH3 Bmaj CY PHO PH1 PH2 PH3 Hpt 2 00 2 2 BH1 BH2 BH3 hy hy hy hy hy hy の影響 と hy has hy hBS 3 ટ $\frac{\omega}{2}$ ¥ ع ا mLCR mLCR mLCR mLCR mLCR. **h**LCR **h**LCR **JCR** S 工 $\mathbf{\alpha}$ S

FIG.3

HUMAN REPLACEMENT OF THE MOUSE &-GLOBIN LOCUS

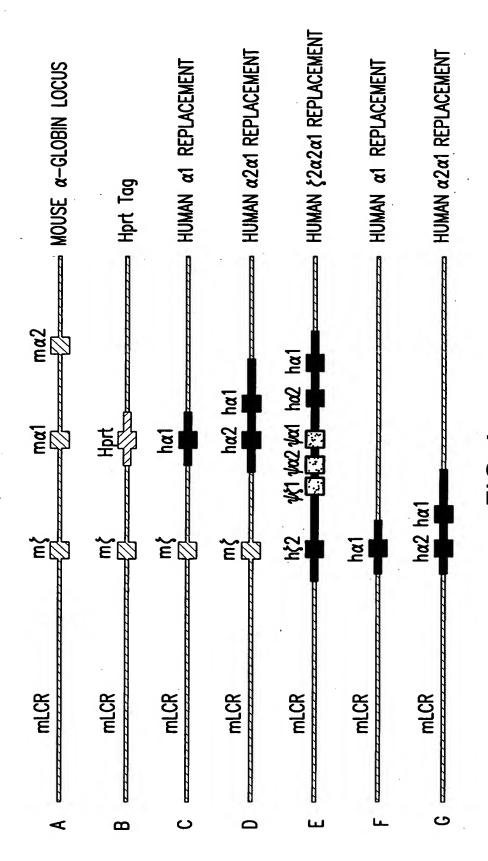
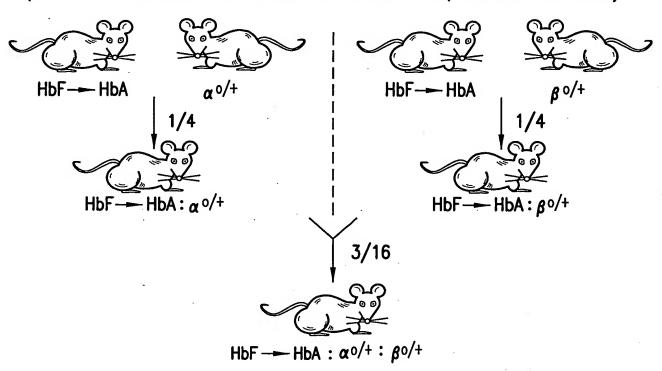


FIG.4

Inventor: Townes et al.
Application No. 10/659,675
Docket No. 21085,0053U5
Sheet: 5 of 16
REPLACEMENT DRAWINGS

PRODUCTION OF TRANSGENIC HbF \rightarrow HbA MICE (DOUBLY HOMOZYGOUS FOR MOUSE $\alpha-$ GLOBIN AND $\beta-$ GLOBIN DELETIONS)



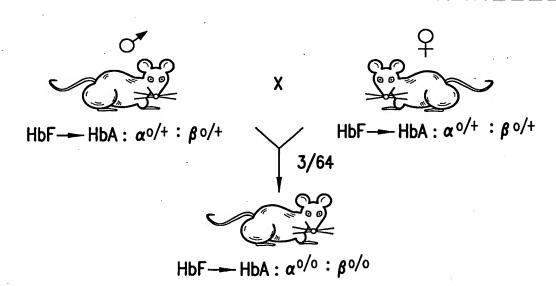


FIG.5

Townes et al. 10/659,675 21085.0053U5 Inventor: Application No. Docket No. Sheet: 6 of 16 REPLACEMENT DRAWINGS 6 of 16

Isoelectric Focusing Gel Of **Transgenic Mouse Hemolysates**

1 3



- 1. Mouse Control
- 2. HbF \rightarrow HbA : α +/+ : β +/+ Mouse 3. HbF \rightarrow HbA : $\alpha^{0/0}$: $\beta^{0/0}$ Mouse
- 4. Human AA Control

FIG.6

Inventor: Townes et al.
Application No. 10/659,675
Docket No. 21085.0053U5
Sheet: 7 of 16
REPLACEMENT DRAWINGS

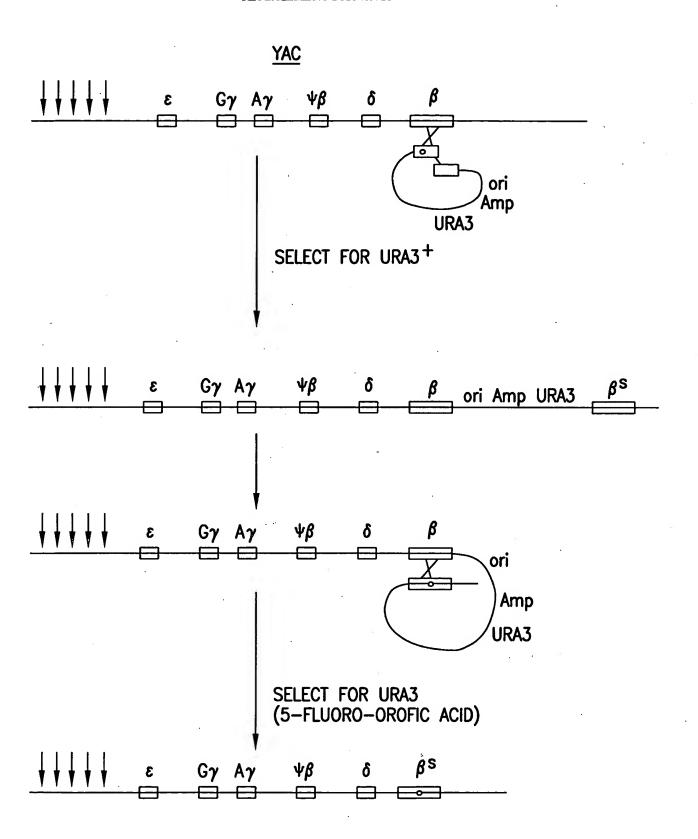


FIG.7

Inventor: Townes et al.
Application No. 10/659,675
Docket No. 21085.0053U5
Sheet: 8 of 16
REPLACEMENT DRAWINGS

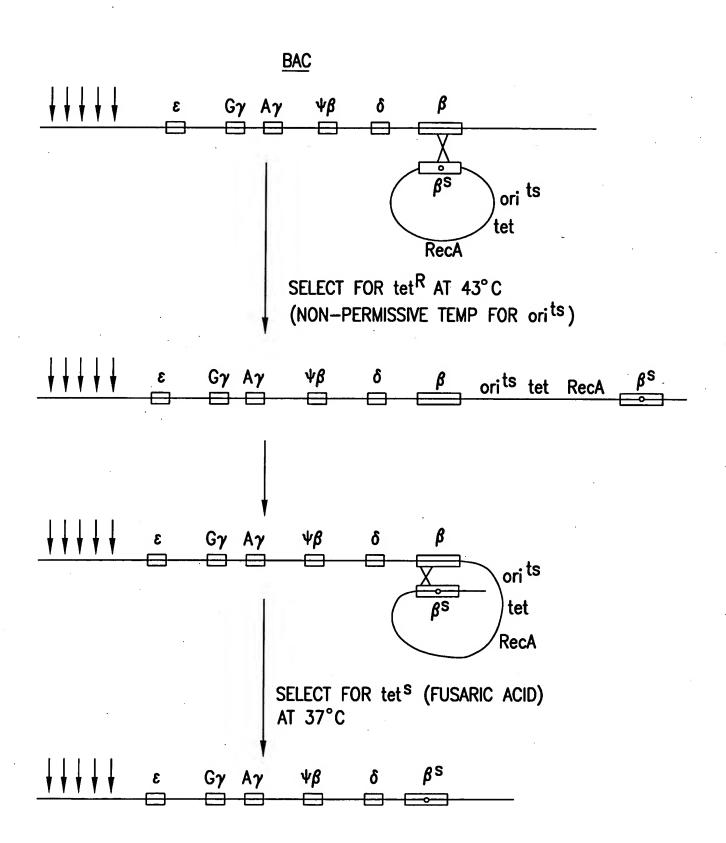
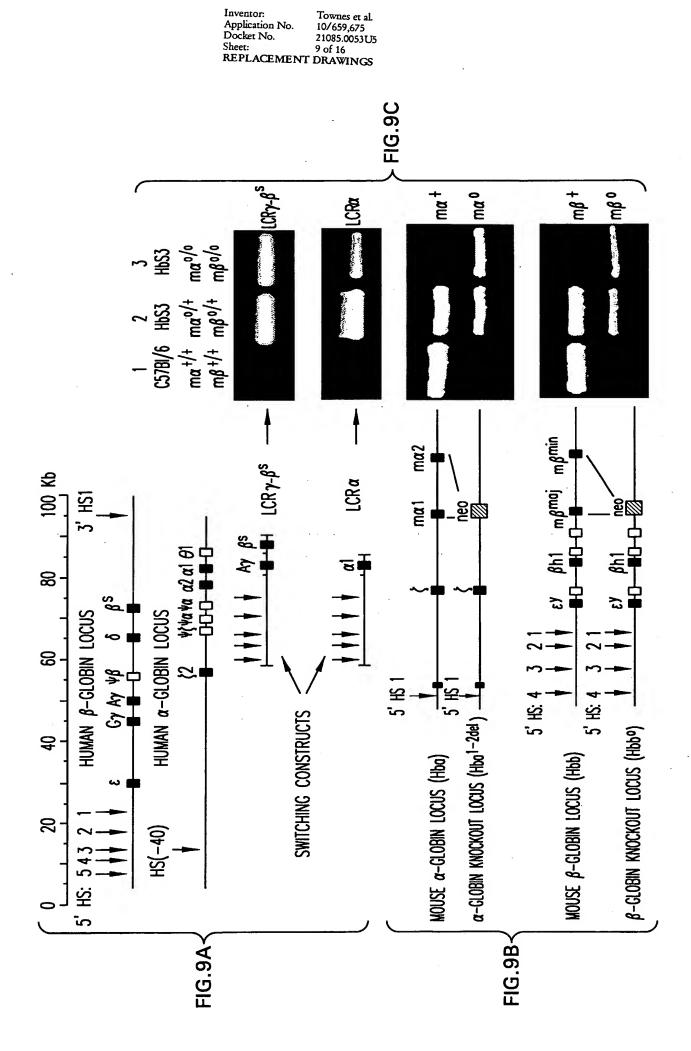


FIG.8



Inventor: Townes et al.
Application No. 10/659,675
Docket No. 21085.0053U5
Sheet: 10 of 16
REPLACEMENT DRAWINGS

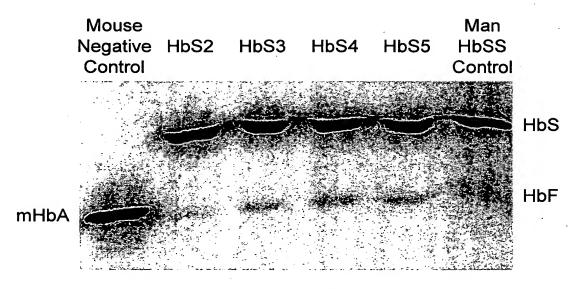
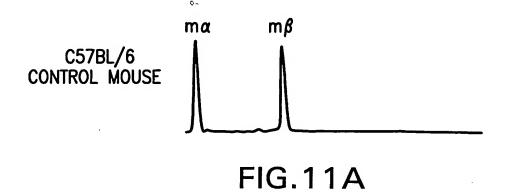
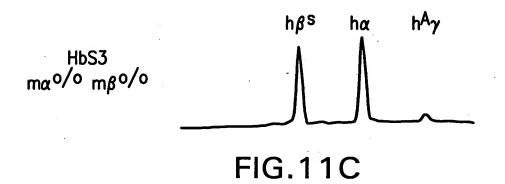


FIG.10

Inventor: Townes et al.
Application No. 10/659,675
Docket No. 21085.0053U5
Sheet: 11 of 16
REPLACEMENT DRAWINGS





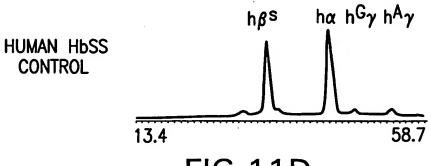


FIG.11D

Inventor: Townes et al.

Application No. 10/659,675

Docket No. 21085.0053U5

Sheet: 12 of 16

REPLACEMENT DRAWINGS

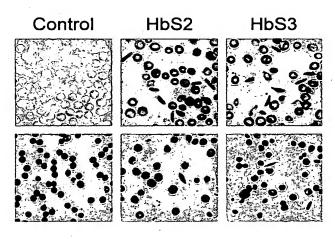


FIG.12

Inventor: Townes et al.
Application No. 10/659,675
Docket No. 21085.0053U5
Sheet: 13 of 16
REPLACEMENT DRAWINGS

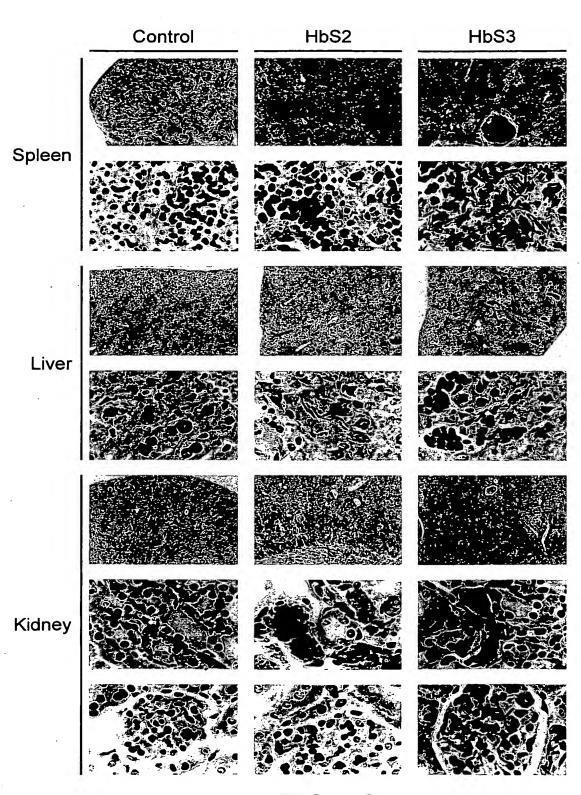


FIG.13

Inventor: Townes et al.
Application No. 10/659,675
Docket No. 21085.0053U5
Sheet: 14 of 16
REPLACEMENT DRAWINGS



FIG.14A

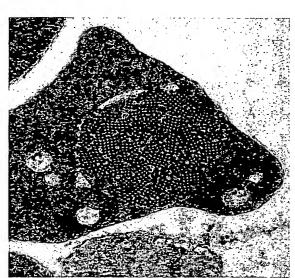


FIG.14B

Inventor: Townes et al.
Application No. 10/659,675
Docket No. 21085.0053U5
Sheet: 15 of 16
REPLACEMENT DRAWINGS

HEMOGLOBIN SWITCHING IN HAA MICE

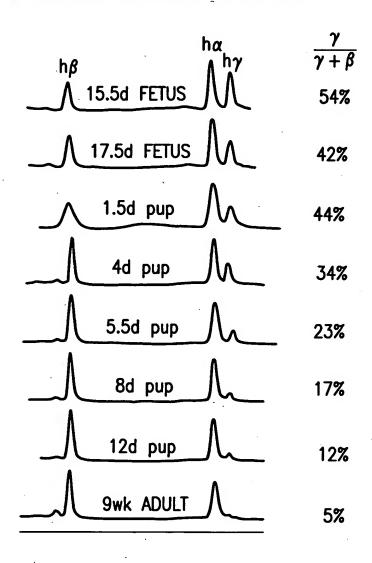


FIG.15

Inventor: Townes et al.
Application No. 10/659,675
Docket No. 21085.0053U5
Sheet: 16 of 16
REPLACEMENT DRAWINGS

INCREASING Hbf Levels in Hbs Mice: Crossing the Hbs 3 and Hbf Lines

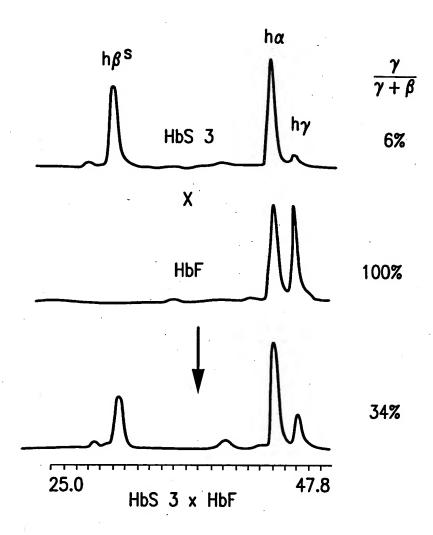


FIG.16